

Commonwealth of Kentucky
Division for Air Quality
FINAL PERMIT STATEMENT OF BASIS

FINAL CONDITIONAL MAJOR PERMIT
PROGRESS METAL RECLAMATION COMPANY
ASHLAND, KY
DECEMBER 22, 2006
MIN WANG
AI # 346, APE20060001
AFS # 21-019-00003

GENERAL SOURCE DESCRIPTION:

Progress Metal Reclamation Company (PMR) in Ashland, KY is classified as a scrap wholesaler primarily engaged in automotive scrap processing. The facility currently included one Electric shredder and a Cyclone. The facility has the potential to be a major source of particulate emissions without taking limits. The permittee is currently operating under a Conditional Major permit limiting processing rates to ensure that particulate emissions are less than 90 ton/year.

On August 30, 2004, the Division received an application requesting authorization to construct a new electric shredder. The permittee has decommissioned the old shredder. In the permit renewal application the permittee has requested this unit to be deleted from the permit. Also, the Pig Machine, an emission source previously permitted, has been dismantled and removed from service. It has been deleted from the renewal permit per permittee's request.

In addition, the permittee included calculations to estimate fugitive emissions from the on-site Storage Yard and Haul Roads, previously included in the permit as an Insignificant Activity. The renewal permit application also indicates that the permittee desires to remain a conditional major source with respect to particulate emissions. The renewal permit includes one electric shredder, a Cyclone, and a storage yard and haul roads emission sources.

The original permit, a conditional major, was initially issued on January 30, 2001. The permit presented with this Statement of Basis is a renewal of original permit which expired on January 31, 2006. After a thorough analysis of all relevant information available that pertains to this source, the division has concluded that compliance with the terms of the permit will ensure compliance with all air quality requirements. Therefore, it is the Division's determination that a Federally Enforceable Conditional Major permit should be issued.

PUBLIC AND U.S. EPA REVIEW:

On October 20, 2006, the public notice on availability of the draft permit and supporting material for comments by persons affected by the plant were published in *Ashland the Independent* in Ashland, Kentucky. The public comment period expired 30 days from the date of publication. The advertised draft permit for this facility had editing errors, such as mislabeled page numbers, lacking of Section C, and wrong general language in Section E. All these errors have been corrected in this final permit.

Comment received

Comments were received from Progress Metal Reclamation on August 29, 2006. Attachment A to this document lists the comments received and the Division's response to each comment. Minor changes were made to the permit as a result of the comments received, however, in no case were any

emissions standards, or any monitoring, recordkeeping or reporting requirements relaxed. Please see Attachment A for a detailed explanation of the changes made to the permit.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.

DETAILED UNIT DESCRIPTIONS AND BASIS FOR PERMIT CONDITIONS:**02 Electric Shredder**

This is the new electric shredder. The conditions for operating this unit remain essentially the same. The new limit affords the permittee more operational flexibility by allowing any combination of production rate (up to the maximum equipment capacity) and total hours of operation to achieve compliance with the 90 ton/year limit.

03 Pig Machine

This unit has been removed from service and has been dismantled. The unit has been deleted from the renewal permit per permittee's request.

04 Storage Yard & Haul Roads

In the previous permit, this source was listed as an insignificant activity. The calculations provided with the most recent application estimate fugitive particulate emissions in excess of 5 tons/year. As a result, this source has been removed from the insignificant activities list and added to SECTION B. 401 KAR 63:010 Fugitive Emissions is the only applicable requirement. This unit has been added to the renewal permit as a fugitive emission source.

ATTACHMENT A

Response to Comments

Comments on Progress Metal Reclamation (PMR) in Ashland, KY Draft Federally-Enforceable Air Quality Permit submitted by Michael P. Vanden Bergh, Director of Environmental Services, Progress Reclamation Services, are listed below. Response to each comment has also been included.

Federally-Enforceable Permit

1. Page 4 - 03 Cyclone, Description:

PRS recommends modification of the text to describe the cyclone function and capacity more accurately. Output from the shredder is conveyed to a magnetic separator and then the magnetically segregated fraction is directed to the cyclone. The Draft Permit text indicates that the cyclone capacity is 25% of shredder capacity. This is not correct; the magnetic fraction of shredder output is 75% of the total. 25% may have been used because, as noted in the earlier application for the existing permit, this is the approximate percentage of “fluff” in the magnetic fraction.

PRS suggests the following text for this section:

“This is an in-line process unit used to remove residual “fluff” from the magnetically separated fraction of electric shredder output. The maximum capacity is 131.25 tons per hour of magnetic fraction, or 75% of electric shredder maximum rated capacity.”

Division’s response: The Division has revised the permit as requested by the source.

2. Page 4 - 2. Emission Limitations:, a. Opacity Standard:

In contrast to the previous shredder, the designs of the new electric shredder and the cyclone stack do not meet all the technical criteria for quantitative Method 9 tests that are necessary for assessing compliance with the 20% opacity limit. The shredder emissions are fugitive (i.e., no stack) and the stack for the cyclone has a rain cap. In addition, operations may be conducted at night when Method 9 testing could not be performed even if the technical criteria were met; illumination, however, is provided to allow qualitative observations. As a result, only qualitative observations of emissions can be conducted, but these are sufficient to prevent operation with excessive emissions. Under normal operating conditions, visible emissions are minor or absent (staff from the Division for Air Quality (DAQ), Ashland Regional Office have visited the site and observed that emission levels are low and compliant) and are routinely monitored and logged daily by the operator. Routine monitoring is an important part of normal operations because it allows the operator to adjust the wet suppression system and/or feed, as necessary, to optimize visible emission control. Should abnormal excessive emissions be observed (none has been observed to date), they would indicate a mechanical control equipment malfunction and require immediate shut down of the operation until corrective actions are implemented. Even if Method 9 tests were technically feasible, they would not be conducted in a mechanical malfunction situation because the operation would be stopped immediately (i.e., abnormal conditions would not continue long enough for completion of a test). Following corrective actions, qualitative observations are, again, adequate to confirm that normal operation has been restored. Consequently, the shredder and cyclone will not be operated if abnormal emissions are occurring. PRS, therefore, suggests modification of the text to recognize the quantitative measurement constraints by replacing the 20% opacity limit with requirements for immediate shut down if abnormal excessive emissions due to a mechanical malfunction are observed

and implementation of corrective actions before restarting.

The Method 9 testing limitations identified above were initially described in a letter from PRS dated December 7, 2005 when the old shredder, which had a stack suitable for Method 9 testing, was being decommissioned for removal.

Division's response: 20% opacity limit is defined by 59:010 for any emission point from a stack, therefore, the emission limitation of 20% opacity can not be changed. However, Specific Monitoring Requirements under 4(b) for EP03 have been changed according to facility's suggestion as follows:

For each stack, vent or control system:

- i. Daily observations of visible emissions during operation of associated equipment. If visible emissions are observed and they are not caused by mechanical malfunction, reasonable precautions, such as adjusting the wet suppression system and/or feed, shall be taken.*
- ii. Observations of visible emissions during all periods of control equipment malfunction. If visible emissions are seen during a malfunction, the shredder and cyclone shall be immediately shut down and corrective actions implemented before restarting.*

*A totally new subsection 5. **Specific Recordkeeping Requirements** has been added to reflect the requirements of the monitoring. By making these changes, the facility will not need to perform Method 9 testing of opacity for EP 03 (Cyclone).*

3. Pages 4 and 5 - 2. **Emission Limitations**; b. Mass Emission Standards:

Two equations are included in subsections i and ii for calculating maximum allowable emissions based on a process weight less than and greater than 30 tons per hour, respectively. When the shredder is operating, the process weight is always much greater than 30 tons per hour, as is the process weight for the cyclone. Consequently, PRS believes subsection i could be removed. The existing permit only includes the equation in subsection ii.

Process weight in the permit is described in brackets as "i.e., the maximum amount of solid scraps/wastes produced or the maximum amount of output product". Process weight is actually the input feed to the shredder and is directly measured by the facility in tons/hour; the process weight for the cyclone is calculated as 75% of that amount. Consequently, PRS suggests that the bracketed text description would be more accurate if revised and simplified as follows:

"i.e., the input feed rate"

In the Compliance Demonstration section on page 5, the formula for calculating the actual average hourly particulate emission rate for a month includes an overall uncontrolled KYEIS particulate emission factor, EF_{PMj} , and an overall control efficiency, CE_j . However, actual calculations of emissions for the electric shredder and cyclone do not use these factors explicitly, but are based on emission factors of 0.05 and 0.057 pounds/ton, respectively, that were included in the application for the existing permit. These emission factors assume 90% control efficiency for the wet suppression system in the shredder and a particulate loading in the cyclone exhaust of 0.05 grains/ft³ (i.e. no specific control efficiency). PRS suggests that the formula and succeeding text could be simplified to reflect more accurately the actual calculation and parameters as follows:

$$E_{PMi} = P_{ij}/h_{ij} \cdot (EF_{PMj})$$

Where i is the month, j is the unit, E_{PMi} is the actual average hourly particulate emission rate for month i (pounds/hour), P_{ij} is the processing rate for unit j during month i (tons/month), h_{ij} is the actual total hours of operation for unit j during month i (hours/month) and EF_{PMj} is the emission factor (pounds/ton). NOTE: the term “unit” refers to the electric shredder or cyclone.”

Division’s response: It is not necessary to delete 2(b)(i) since this is just one of the scenarios. The facility will have the freedom to choose the equation that applies to their own specific situation. “i.e., the input feed rate” has replaced the old language as the facility suggested. It is also not necessary to change the equation for calculating the PM emissions since the equation the facility suggested is the unique scenario of $CE_j = 0\%$ since the EF in the existing EIS has already considered the control efficiency of the wet suppression system and cyclone.

4. Page 5 - c. Fugitive Emission Standard, Compliance Demonstration

The second paragraph beginning with “In case of failure of equipment...” refers to application of water to storage piles or road surfaces and appears to have been included in error or is misplaced. Perhaps, this paragraph was intended to be part of the later Haul Roads emission source text.

Division’s response: The Division has replaced this paragraph as facility requested with “ The Permittee shall maintain and document compliance through completion of monitoring and record keeping requirements outlined in this section”, and related requirements have been added to 4. Specific Monitoring Requirements and 5. Specific Recordkeeping Requirements. At the same time, more detailed requirements for controlling fugitive emission have been added to 1. Operating Limitations as follows:

Pursuant to 401 KAR 63:010, Section 3 (1), the permittee shall not cause, suffer, or allow any material to be handled, processed, transported, or stored, allow a building or its appurtenances to be constructed, altered, repaired, or demolished, or allow a road to be used without taking reasonable precautions to prevent particulate matter from becoming airborne. Reasonable precautions to prevent particulate matter from becoming airborne shall include, when applicable, the following:

Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials, or the use of water sprays or other measures to suppress the dust emissions during handling.

5. Pages 5 and 6 – 3. Specific Monitoring Requirements: b.

This section of the Draft Permit requires maintaining a log of visible emissions twice a month (the extent of each logging period (e.g., hour, day) is not stated) and during all periods of control equipment malfunction. Currently, the operator qualitatively monitors emissions routinely, adjusts the wet suppression system and/or feed, as necessary, to minimize emissions, and maintains a daily log of visible emissions for the shredder and cyclone stack. If a mechanical malfunction that caused abnormal excessive emissions were to occur, the log would record a shutdown for corrective action; corrective actions and restoration of normal operation would also be documented. The routine

observations and logging are conducted not just to satisfy current permit requirements but to monitor, optimize and document system operation. PRS, therefore, plans to continue these more frequent observation and logging procedures. The second requirement for logging during all periods of control equipment malfunction does not appear necessary, because there will be no operation under these conditions. In the event of a mechanical malfunction, the process would be immediately shut down for corrective action.

During either day or night operation, compliance with all the conditions in the subsections would not be possible. As noted above for the Opacity Standard section, Method 9 testing cannot be performed because the emission units do not satisfy all the technical criteria. Nevertheless, according to subsections i and ii, if any visible emissions are seen, Method 9 readings must be taken. Since low, but compliant, levels of visible emissions may occur when the shredder and cyclone are operating normally, satisfying this condition, even if Method 9 tests could be performed, would technically require continuous testing, which would be impractical.

In summary, PRS recommends modification of section b. to recognize that low, but compliant, levels of visible emissions are normal at the shredder and cyclone and to eliminate the requirements for Method 9 testing and logging during periods of control equipment malfunction. Furthermore, PRS believes that routine qualitative emission monitoring and daily logging should be maintained to provide a continuous record of normal operation and, if a mechanical malfunction occurs, documentation that operations were immediately shut down until corrective actions were completed. This more stringent schedule could be specified in this section.

Division's response: See the response to Comment 2.

6. Page 6 – 4. Specific Reporting Requirements: a. and b.

Since Method 9 testing is not feasible, exceedances of the 20% opacity limit could not be confirmed for applicability of subsection a. PRS, therefore, suggests either removal of this requirement and following section b., or modification of the text for consistency with the qualitative visible emissions monitoring and system optimization adjustments that are routinely conducted, and the facility procedure for responding to potential mechanical malfunctions that cause abnormal excessive emissions.

Division's response: See the response to Comment 2.

7. Page 7 – 4. Specific Reporting Requirements: b.

In subsection b., PRS suggests that "...particulate matters are found..." should be changed to "...particulate matter is found..."

Division's response: The Division has revised the permit as requested by the source.

8. Page 8 – 4. Specific Monitoring Requirements:

PRS recommends modification of the text to eliminate the requirement for specific weekly inspections. Inspections at fixed intervals are not necessary because dust control is a routine part of facility operations and observation and inspection are conducted continuously during these activities.

Operators of dust control equipment (dry sweeper, wet/dry sweeper or water truck) are responsible for continuously observing/inspecting the surface condition of plant areas and adjacent public streets where trackout may occur, evaluating weather conditions, and focusing on areas where operations are taking place and the potential for particulate material deposition and dust generation is greatest. Yard supervisors also continuously monitor surface conditions and may provide additional guidance for dust control equipment operators. These dust control activities are conducted not only to minimize generation of airborne particulates but also to maintain compliance with requirements of the facility storm water permit.

PRS suggests the following modified text for this section:

“When the facility is operating, the permittee shall routinely inspect plant roads and adjacent public streets where trackout may occur for the presence of particulate matter.”

Division’s response: The Division has replaced the existing language using the new language as following:

On an operating daily basis, the Permittee shall inspect the plant roads and adjacent public streets for the presence of particulate matter. If there is a potential for fugitive emissions then reasonable precautions, as listed above, shall be taken.

9. Page 8 – 5. Specific Recordkeeping Requirements:

The facility currently maintains a “Street Sweeper” log that includes date, driver and plant subarea information; a copy is attached. PRS feels that this recording is adequate and that the additional logging information requested in the subsections is unnecessary for the reasons discussed below.

- i. This subsection requires recording the amount of water or other substances applied. Recording of this information is not believed to be warranted because only water is applied and the amount is a poor indicator of the extent of dust control activities. The dry sweeper does not use water and the wet/dry sweeper does not always use water. Furthermore, weather conditions significantly affect the amount of water usage; for example, water is not used when temperatures are below freezing and usage is much lower when cool and/or damp conditions prevail even though cleaning activities are always occurring. The number of drivers (indicates the number of vehicles in operation) and plant subareas recorded on the existing log are much better measures of dust control activities.
- ii. The facility has three vehicles that are operated, as needed, for control of dust and other particulate accumulations on plant roads/surfaces and adjacent public streets where trackout may occur. However, logging of malfunctions (e.g. breakdown of watering equipment) is not necessary because these three vehicles together provide considerable excess capacity; temporary removal of a vehicle for service/repair does not restrict control capabilities.
- iii. As noted above, since dust control is a routine activity that includes continuous observation/inspection by equipment operators and yard supervisors, separate inspections are not necessary.

Division’s response: The Division has replaced the existing language using the following new

language:

The Permittee shall maintain a log of daily work practices and monitoring completed as required by this permit. This log shall be maintained on-site in a form suitable for inspection. This log shall contain information on all controls (water and non-water application which includes but not limited to sweeping and debris collection etc.) applied to the affected units listed above.

10. Page 9 – 1. b. Compliance Demonstration:

PRS believes the formula in this section should be modified or replaced by text because it does not precisely reflect the calculations that will be completed for all emission sources. Some of the parameters in the formula are not directly applicable for the electric shredder and cyclone (see earlier comments for the formula on Page 5), and calculation of haul road traffic emissions (trucks and loaders) does not involve a process rate with units of tons/month. Traffic emissions will be calculated on the basis of monthly estimates of vehicle miles traveled (VMT) and KYEIS emission factors. If a formula is retained, it could be a summation of the following form that includes two terms; one for the shredder and cyclone (based on simplified formula suggested for Page 5), and a second for haul road traffic that includes VMT (miles) and KYEIS emission factors (pounds/mile) for total PM:

$$E_{PM} = \sum_{i=1}^{12} \sum_{j=1}^n \frac{P_{ij} \cdot (EF_{PMj})}{2000} + \sum_{i=1}^{12} \sum_{k=1}^n \frac{M_{ik} \cdot (EF_{PMk})}{2000} < 90 \text{ tons/year}$$

Where i is the month, j and k are the units, E_{PM} is the actual 12-month total particulate emission rate (tons/year), P_{ij} is the processing rate for unit j during month i (tons/month), EF_{PMj} (pounds/ton) and EF_{PMk} (pounds/VMT) are emission factors, and M_{ik} is the distance traveled by unit k during month i (VMT/month). NOTE: “j” refers to the electric shredder or cyclone and “k” to the trucks or loaders.”

Alternatively, if replacement by text is selected, PRS suggests the following:

“Compliance with the limits described above shall be determined by comparing the allowable rate (<90 tons/year) to the sum of actual annual emission rates for the electric shredder, cyclone and haul road traffic.”

Currently, the facility prepares a monthly table for the existing permit that includes hours of operation, actual total particulate emissions from the electric shredder and cyclone, calculated allowable emissions, and 12-month running totals for tonnages and particulate emissions; a summary table is included with each semi-annual report. When this Draft Permit is final, the current tables will be revised to include haul road traffic total PM as well as PM_{10} (separate KYEIS PM and PM_{10} emission factors are provided for haul road traffic).

Division’s response: The Division has revised the permit as source suggested.